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COMMITTEE ON THE PEACEFUL USES OF OUTER SPACE

VERBATIM RECORD OF THE THREE HUNDRED AND THIRTY-SEVENTH MEETING

Held at Headquarters, New York,
on Tuesday, 5 June 1990, at 10.30 a.m.

Chairman: Mr. JANKOWITSCH (Austria)

- General exchange of views (continued)
- Attendance by non-members of the Committee

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The meeting was called to order at 10.50 a.m.

GENERAL EXCHANGE OF VIEWS (continued)

The CHAIRMAN: I should like to remind representatives that the list of speakers for agenda item 3 will be closed today at noon.

Mr. NOREEN (Sweden): I should like at the outset to express the Swedish delegation's great satisfaction at seeing you, Sir, presiding over our deliberations. The Committee on the Peaceful Uses of Outer Space is indeed fortunate to have as its Chairman a person of your stature and long experience. My delegation is pleased to work during this session under your able chairmanship.

The remarkable improvement of the international situation we are witnessing today entails unprecedented opportunities for greater international co-operation. Co-operation on the exploration and utilization of outer space should of course be no exception in that respect. In fact, few areas are more suitable for international co-operation than outer space. For smaller countries like my own, international co-operation is a prerequisite for the development of their space activities.

The Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE 82) made a number of recommendations on how to strengthen international co-operation regarding outer space. Sweden has on many occasions called for a more rapid implementation of those recommendations.

At this year's session, the Scientific and Technical Sub-Committee had before it a report by the Secretariat concerning those UNISPACE 82 recommendations addressed to the United Nations that had not yet been implemented. The report concluded that the United Nations has made efforts to implement, at least in part, virtually all of the recommendations addressed to it. The report also stated that many recommendations have not been fully implemented owing to the limited resources

(Mr. Noreen, Sweden)

available to the United Nations and that additional resources would be required for a more complete implementation.

One of the most important achievements of UNISPACE 82 was the recommendation to strengthen the United Nations Space Applications Programme. In support of the Programme, Sweden is currently hosting the first United Nations Training Course on Remote Sensing for Educators. The course, which is organized by the United Nations Outer Space Affairs Division in co-operation with the Swedish Agency for International Technical and Economic Co-operation, is being conducted as a teachers' education programme for the benefit of member States of the United Nations Economic Commission for Africa. The main objective of the course is to develop the practical knowledge and skills primarily of university teachers in remote sensing technology and to equip them with an ability to introduce elements of the technology into education curricula in their own countries. Many of the foremost Swedish teachers on remote sensing participate as teachers in the course. We are very pleased that the course has attracted considerable interest and attention. The total cost of the training course is about $350,000.

The use of nuclear power sources in outer space has been under consideration in the Committee on the Peaceful Uses of Outer Space and its two Sub-Committees for over 10 years. That is no doubt a long time - many of us would say too long. But it now appears that we will soon be in a position to conclude the consideration of that highly important item on our agenda. This year's agreement on technical guidelines and recommendations for the safe use of nuclear power sources in outer space, first in the Scientific and Technical Sub-Committee and later in the Legal Sub-Committee, represents a major step forward in our work. In both Sub-Committees, agreement was reached after long and arduous negotiations in which concessions were made on all sides in order to arrive at a compromise solution.

(Mr. Noreen, Sweden)

The agreement in the Legal Sub-Committee on draft principle 3 - guidelines and criteria for safe use - means that the major obstacle towards a full set of draft principles has been removed. If the same spirit of compromise and flexibility continues, the Legal Sub-Committee should be in a position to come to a final agreement at next year's session on all draft principles relevant to the use of nuclear power sources in outer space.

In Sweden's view, the principle on notification of the presence of a nuclear power source on board a space object should be considered together with the principle on safety assessment. Sweden supports the idea of making safety assessments publicly available and of making such assessments prior to each launch. That would in practice be tantamount to the notification that we and many other countries have consistently called for and would therefore appear to make draft principle 2 on notification redundant.

In its report from this year's session, the Scientific and Technical Sub-Committee recommended that the item on nuclear power sources be retained on its agenda as a priority item for the next session. At the same time, the Sub-Committee recommended that the question of reconvening the Working Group on Nuclear Power Sources in Outer Space be considered by the Committee at this session in the light of the work carried out by the Legal Sub-Committee. Given the agreement on draft principle 3 in the Legal Sub-Committee, it is the view of my delegation that the Working Group on nuclear power sources in the Scientific and Technical Sub-Committee should in principle not be reconvened. That Working Group's principal task - to establish a common technical basis for the elaboration of draft principle 3 - has been accomplished. The Scientific and Technical Sub-Committee has also recommended that the Committee at this session consider the future work of the Sub-Committee and the way in which it affects the work of the Legal Sub-Committee, in particular on the agenda item on nuclear power sources.

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(Mr. Noreen, Sweden)

Sweden firmly believes that the Scientific and Technical Sub-Committee should devote more attention to questions relating to outer space environment, in particular the problem of space debris. My delegation noted with great interest what you, Mr. Chairman, said on that important question in your introductory statement yesterday.

Over the last few years, space debris has become a matter of increasing concern and has been identified as a serious threat to man's exploration and utilization of outer space. This has been indicated in various studies conducted at both the national and the international levels. Recent studies have been made in the Federal Republic of Germany, in the United States by a Government interagency group co-chaired by the National Aeronautics and Space Administration (NASA) and the Department of Defense, by the European Space Agency, by the Committee on Space Research (COSPAR) and the International Astronautical Federation (IAF).

The United States interagency report on space debris concludes that, left unchecked, the growth of debris could threaten the safe and reliable operation of manned and unmanned spacecraft in the next century. According to experts who took part in a conference on space debris in Baltimore recently, the international space station planned for the late 1990s faces serious safety risks from intermediate-sized pieces of orbital space debris too large to be deflected by protective metal shielding on the station and too small to be tracked by radar from Earth and avoided.

It is clear that the major spacefaring nations will have to assume a special responsibility in addressing the problem of space debris. They are, of course, also the ones that are most immediately affected by the growing amount of space debris.

(Mr. Noreen, Sweden)

But it is equally clear that this problem cannot be solved by one or two nations alone. Space debris is a global concern, requiring the attention and involvement of the international community. Pollution of the space environment and the increasing risks of collisions between space debris and spacecraft reduce the accessibility of space for all countries.

At last year's session of the Outer Space Committee, Sweden, together with Australia, Belgium, Canada, the Federal Republic of Germany, the Netherlands and Nigeria, proposed that the issue of space debris be put on the agenda of the Scientific and Technical Sub-Committee. Although no consensus was reached on that specific proposal, the Committee agreed that space debris was an issue of concern to all nations. The Committee also considered it essential that more attention be paid by Member States to the problem of space debris and other aspects of space debris. The Committee called for the continuation of national research on this question.

That language was incorporated into General Assembly resolution 44/46, on international co-operation in the peaceful uses of outer space, which was adopted in December last year. The resolution also recommended that more attention should be paid to all aspects related to the protection and the preservation of the outer space environment, especially those potentially affecting the Earth's environment. That was the first time the General Assembly had pronounced itself on the question of outer space environment and space debris. This in itself is an encouraging development that no doubt reflects the growing awareness of the problems relating to space debris.

Sweden shares the view, expressed both in the United States inter-agency study and the report by the European Space Agency I have referred to, that more knowledge is needed, particularly concerning smaller space debris. That is why we think that

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the issue needs to be considered in a scientific and technical context. What is needed is a better scientific and technical understanding of the problem, not only among the major spacefaring nations, but in the international community as a whole.

Sweden is convinced that the issue of outer space environment must be brought to the attention of the United Nations. It is only through the involvement of the international community that this issue can be effectively addressed.

It is our firm conviction that the United Nations must continue to play an important role in international space co-operation. The vitality of the work of the United Nations in the field of outer space very much depends on the ability and the will of Member States to raise and deal with the real issues in an open and pragmatic way. If all the important problems are only dealt with elsewhere, then there is a risk that the role of the United Nations in the field of outer space will be gradually eroded.

Mr. CHANDRASEKHAR (India): The Indian delegation wishes to express its deep satisfaction at seeing you again in the Chair, Sir, guiding the Committee's deliberation at this session. Given the past record of your outstanding contributions to the Committee, we are sure that the Committee at its current session is well poised to record further progress under your leadership. We also wish to record our appreciation and thanks to the Chairmen of the two Sub-Committees and all the members of the Secretariat who have ably supported the work of the Sub-Committees.

Since the Committee's last session there have been several developments in activities related to outer space. Many of them have a bearing on the twin objectives - the promotion of international co-operation and the peaceful uses of outer space - which are central to the Committee's mandate.

Looking at the work of our Sub-Committees this year, we find it a matter of satisfaction that consensus was achieved on some of the longstanding and ticklish

(Mr. Chandrasekhar, India)

issues. I refer particularly to the consensus recorded on one of the most important principles relating to the guidelines and criteria for the use of nuclear power sources in outer space. On many other items, too, there have been constructive discussions this year, and these could pave the way for a common understanding in future. This was indeed possible, due to an extensive level of co-operation and the spirit of compromise extended by all the delegations represented in our Committee.

It is also significant to note that the Scientific and Technical Sub-Committee has further discussed several co-operative activities as well as initiatives planned to be undertaken in the context of International Space Year. These activities have the potential to strengthen the role of our Committee in further promoting international co-operation for the peaceful uses of outer space.

The past year has also witnessed some significant developments and initiatives in various countries in the field of outer space. There have been efforts to commit human endeavour on a long-term basis to fully exploiting outer space for the benefit of humankind and further exploring the solar, planetary and Earth systems. What is significant in these recent trends is the increased desire of major spacefaring nations to seek and utilize international co-operation as an important mechanism to achieve those goals.

Permit me briefly to mention a few significant events in the exploration and utilization of outer space during the past year. The successful launch of the Hubble space telescope by the shuttle "Discovery" is an important milestone. We congratulate the United States of America and also the European Space Agency, which contributed to the programme. The successful launch of ROSAT on 1 June was another important milestone. The significant experiments conducted through the "Mir" space station during the six-month-long mission involving the Soviet cosmonauts Serebrov

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and Victerenko and the successful docking of additional modules to the "Mir" station deserve our rich tributes to the Soviet Union. We also congratulate China on its several successful flights of Long March vehicles, which included the recent launch mission of ASIASAT. We congratulate France on the successful launch of SPOT-II and Japan on its launches of the Muses-A lunar probe and the GMS-4, MOS-1B and JCSAT-II satellites. Notwithstanding those significant successes, space activities continued to pose a challenge through a few costly failures. We hope that those temporary setbacks will be overcome soon.

Turning to the progress of space activities within our own country, we are happy to inform the Committee that the Indian remote-sensing satellite IRS-1A has been functioning well, and recently it passed the second anniversary of its launch. To continue the services initiated by IRS-1A, India is also building an identical satellite, IRS-1B, which is planned to be launched aboard a Soviet Vostok launcher in mid-1991. Also the design work on follow-on satellites in this series - IRS-1C and 1D - is well under way. The satellite-based operational services in the country for telecommunications, meteorology and television and radio networking is planned to be continued through INSAT-1D, which is scheduled for launch on 12 June. India is currently engaged in the development of the second-generation Indian National Satellite (INSAT) satellites. The first test spacecraft in this generation is scheduled for launch by the end of 1991.

While striving to achieve indigenous capabilities in the exploration and utilization of outer space to meet its needs of rapid socio-economic development, India is keen to promote international co-operation in this field, and continues to work actively with several other national space agencies and international organizations. A programme called DYANA - Dynamics Adopted Network for Atmosphere Research - is being pursued in collaboration with the Union of Soviet Socialist

(Mr. Chandrasekhar, India)

Republics for measurement of meteorological parameters and ozone concentrations in the middle atmosphere through balloon- and rocket-borne experiments. Active co-operation is continuing with several agencies, such as the National Oceanic and Atmospheric Administration (NOAA) in the United States, the European Space Agency, the Centre National d'Etudes Spatiales (CNES) of France, the Federal Republic of Germany's Aerospace Research Agency (DLR) and the International Institute for Aerial Survey and Earth Sciences (ITC) in the Netherlands.

(Mr. Chandrasekhar, India)

Noting the particular emphasis emerging world wide for the preservation and protection of the environment, and taking into account the needs of India, appropriate national programmes are being studied and evolved in the context of the international geosphere and biosphere programme.

With a view to exchanging ideas with other countries, in addition to exploring the possibilities of further international co-operation in the context of the global programme, the Indian delegation made a detailed presentation of India's plans for geosphere-biosphere research during the last session of the Scientific and Technical Sub-Committee. India is also actively participating in the international efforts for Search and Rescue Satellite (SARSAT)-aided tracking. The Local User Terminal and the Mission Control Centre in Bangalore, India for the Space System for Search for Vessels in Distress (COSPAS)-SARSAT ground segment has been declared operational from 1 October 1989. There have also been continued efforts by India to share its experience and to develop co-operation with other developing countries in the field of space applications through the Satellites for Health and Rural Education (SHARE) programme, which was initiated following the Second United Nations Conference on the Peaceful Uses of Outer Space (UNISPACE 82).

Fifty persons from various developing countries belonging to the regions of Africa, the Middle East, South-East Asia and Latin America have so far been provided with assistance and opportunities for training in space applications.

In the context of International Space Year (ISY), India is considering providing an increased level of opportunities under this programme for the training of personnel from developing countries, particularly on the themes of special focus for ISY.

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India is actively co-operating with international bodies and forums, such as the International Astronautical Federation (IAF), the International Council of Scientific Unions (ICSU) and the Space Agency Forum for the International Space Year (SAFISY) in relation to forging international co-operative activities to be undertaken in the context of ISY.

For the study of problems related to the Earth's environment through global co-operation, and particularly with the participation of developing nations, India has been closely co-ordinating for promoting global initiatives with missions like the Protection of the Environment for Assuring a Cleaner Earth (PEACE), whose concept is to be studied by an international committee of experts, in keeping with the decision taken at the recent SAFISY meeting at Kyoto, Japan.

India is of the view that the speedy implementation of the UNISPACE 82 recommendations is essential for spreading the benefits of space technology to developing countries. Hence, we should like to see the United Nations Space Applications Programme strengthened and the necessary assistance for undertaking a few concrete projects involving space applications in developing countries rendered. In support of the United Nations Space Applications Programme, India is actively considering and planning to host a workshop on basic space sciences for the benefit of developing countries in 1991.

Looking forward to the work of the current session, we are hoping to see further progress made on a number of subjects on our agenda. We should particularly like to see the urgent consideration of all issues which are essential for strengthening international co-operation to ensure that outer space is explored and utilized only for peaceful purposes and that the benefits of space technology are made available rapidly to all nations, particularly developing nations. In this context, some of the current developments - particularly those which have the

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potential to turn outer space into an arena of military competition and confrontation - concern us immensely. There is an urgent need for us to work together to prevent such a prospect. Such a trend, which is fuelled by the rapidly progressing technological research and development, needs to be regulated with appropriate international legal measures to ensure that such research and development is harnessed and can be used only for peaceful purposes and for providing benefits to all countries, particularly those which are yet to realize large-scale benefits from outer space. Further, there is a need to preserve the effectiveness of the international legal measures already evolved, and efforts have to be continued to strengthen them further. We hope that the favourable winds witnessed in the area of international relations in recent years will be taken advantage of to ensure that outer space remains wholly and truly peaceful. It is our hope that the work of our Committee and the two Sub-Committees will focus on developing appropriate international co-operation to promote this goal and remove all impediments to it.

The rapid spread of the benefits of space technology cannot come about in the absence of a more intensive international co-operation and a propitious climate for the development of indigeneous capabilities within the nations which wish to utilize outer space to meet their pressing development needs. In this context, the need for an appropriate international legal framework and timely assistance to developing nations by way of transfer of knowledge, technologies and equipment and encouragement of the development of indigenous capabilities hardly requires any emphasis. An increasing trend of directing development in outer space towards an arms race and an overriding accent on commercialization come in the way of the transfer of technologies and equipment to a large number of developing countries which wish rapidly to utilize space technology and develop indigenous capabilities for the use of space for peaceful development needs.

(Mr. Chandrasekhar, India)

Mr. Chairman, in your opening statement you mentioned some important issues for consideration at this session of our Committee. The time has come for us to concentrate on the subject of space debris in our efforts to protect the outer-space environment. Activities related to ISY, which also coincides with the tenth anniversary of UNISPACE 82, should be largely oriented towards the needs of developing nations. To achieve this, specific strategies should be worked out in our Committee.

There is a need to come to a consensus on further principles on the use of nuclear power sources. Discussions may also have to be initiated on the new developments that are expected to take place in the human endeavour towards exploration of the Moon, Mars, asteroids, and so on.

We hope that the new agenda item in the Legal Sub-Committee will address some of the problems preventing all countries, and in particular the developing countries, from having rapid access to the benefits of outer space. It is important that the Working Group to be convened on this agenda item during the thirtieth session of the Legal Sub-Committee start a substantive consideration.

In concluding, I wish to assure the Committee of my delegation's earnest efforts and co-operation in ensuring further progress at this session.

Mr. GAZENKO (Union of Soviet Socialist Republics) (interpretation from Russian): Mr. Chairman, the delegation of the Soviet Union expresses its deep satisfaction at seeing you once again guiding the work of our Committee, and naturally wishes you all success in carrying out your responsibilities.

Today, during a period of significant overall improvement in the international climate, when new approaches and initiatives which have arisen as a result of new political thinking are being increasingly taken into account in daily life, we are laying a firm and reliable foundation for developing international co-operation on

(Mr. Gazenko, USSR)

a whole spectrum of global problems facing mankind. Here a special place must be given to the human significance of the problems of peaceful exploration and use of outer space. These are problems dealt with directly by our Committee.

An important landmark is the meeting that just took place in Washington between the President of the Soviet Union, Mr. Gorbachev, and the President of the United States, Mr. Bush, at which joint agreements were reached heralding a period of Soviet-American interaction to be raised to a new qualitative level. Broad prospects are now opening for fruitful co-operation on a mutually profitable basis in the most varied areas, including outer space.

Our delegation feels that it is necessary to state once again as clearly as possible that the Soviet Union expresses a sincere desire for broad co-operation in outer space, including reaching a package of international agreements which would ensure the use of outer space for exclusively peaceful purposes. Our fundamental approach is essentially this: not to allow the arms race to spill over into outer space and not to allow it to become an area of confrontation - and that approach remains unchanged.

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That is why we have repeatedly come back to the topic of peaceful co-operation among States and that is why we are striving to bring this about, not in words, but in deeds. We feel that the greater the opportunities for the peaceful mastery of outer space, the fewer areas there will be for using outer space for military purposes. There can be no doubt about the important significance of the decision taken by the General Assembly at its forty-fourth session when it approved the initiative of international non-governmental organizations to declare 1992 International Space Year (ISY). We must make full use of the opportunities linked with the holding of the Year in order to find more effective ways and means to achieve international co-operation in outer space. We are convinced that within the framework of the Year, which will become a noteworthy event in the life of the international community, it will be possible under these conditions to involve all countries in fruitful and creative co-operation and in the evaluation of the successes and achievements of practical outer space science and fundamental space science.

I believe that I shall not be mistaken if I say that we have seen more and more clearly the common human aspects and the global nature of problems related to environmental cleanliness and that that area does, in fact, have an outer space dimension to it. Evidence of this is the United Nations decision to hold a Conference on Environment and Development in 1992. Solving that problem cannot really even be contemplated without the active use of space resources for monitoring and observation, during which it would be extremely favourable and reasonable to carry out monitoring of the unfavourable ecological changes taking place on earth, in the air and at sea.

(Mr. Gazenko, USSR)

The Committee clearly should not remain outside or avoid discussion of this topic. Therefore, it should be quite natural, within the framework of our discussions, for questions to be raised about carrying out joint space projects for environmental purposes. Suffice it to recall the proposal of India on this matter. Proposals submitted by the Soviet Union are also on the negotiating table. In particular, we have proposed the establishment of an international space laboratory or manned orbital station for monitoring the environment. Our assumption is that the question of organizing and building a world-wide global system for space monitoring has become more and more timely. As a first step towards the creation of such a system, we could use the Priroda and the "ALMAZ" projects being carried out in our country. We shall tell the Committee more about those programmes in due course.

I should also like to dwell briefly on questions related to the Soviet space programme as it has developed over the period since the end of our last session. On 27 April 1989, after successfully carrying out a broad programme of research and experiments aboard the Mir manned space station, cosmonauts Aleksandr Volkov, Sergey Krikalyev and Valeriy Polyakov safely returned to earth. Let me remind members that the first two cosmonauts were in orbit 151 days, while Valeriy Polyakov, who had arrived in outer space earlier, spent 241 days in outer space. Since 8 September 1989, the Mir station has been manned by Aleksandr Viktorenko and Aleksandr Serebrov. During the half year of their expedition, they carried out a large number of astrophysical, geophysical, technological, biological and medical research and experiments. Great attention during that expedition was also given to work outside the space station.

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During the five space walks, the cosmonauts were in outer space for a total of 17 hours, 35 minutes. They tested a new space suit and a special device for transferring cosmonauts which would allow them to carry out rather lengthy space walks.

In December 1989, the Kvant-2 module docked with the Mir station. The Kvant-2 module delivered supplies and new solar batteries. Thus one more step has been taken towards the establishyment of a multimodular orbital complex.

In February this year, Anatoly Solovyev and Aleksandr Balandin relieved the preceding crew on the Mir station, and they are to hand over the watch in outer space to the next crew in July of this year.

While those crews are working in orbit, training is taking place on earth for future space expeditions. It has now become routine that along with the Soviet cosmonauts candidates from other countries also undergo training. In the last year, we carried out a very careful selection for joint flights with candidates from Austria, the United Kingdom and Japan. Two representatives of each country are undergoing training at the present time in the Soviet Cosmonaut Training Centre. In accordance with agreements providing for the organization of such flights on a commercial basis, cosmonauts of those countries will make space flights to the Mir station in the period 1990 through 1992.

In April 1990, an agreement was signed to carry out on a commercial basis a joint Soviet-West German space expedition in 1992, which will include a cosmonaut researcher from the Federal Republic of Germany. The expedition's programme is calculated to last from seven to eight days, and they are preparing to carry out aboard the Mir station a number of scientific research experiments, including materials science, biotechnology and medicine.

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A significant step in the area of experimental astrophysics was the launch into high elliptical orbit of the Granat orbital observatory. This is our country's first specialized X-ray and gamma-ray satellite that is also an international laboratory. It carries scientific equipment built by scientists and specialists from the Soviet Union, France, Denmark and Bulgaria. The Granat orbital observatory has a large on-board memory capacity, which will ensure that it can carry out virtually round-the-clock observations, along with a large detector surface, which will ensure that there will be an enhanced effectiveness in the work of the laboratory.

The continuing spectrum of work being done under the Intercosmos programme also included the launching in September last year of the Intercosmos-24 satellite. The main purpose of that project, in which specialists of seven countries are participating, is to do research into processes of low-frequency electromagnetic wave propagation in the earth's magnetosphere and such wave's interaction with charged particles in the radiation belt.

We have already informed the Committee about interesting and important research being done in the Soviet Union on specialized Cosmos biological satellites. Another step along these lines was made last September, when a 14-day flight was carried out successfully on Intercosmos-24, which carried two monkeys, rats, fish, insects, plants and cell cultures. Scientists from 10 countries participated in the preparation of that experiment and in the after-flight research work that followed.

On 27 February this year, the Soviet Union launched the Nadezhda satellite, which carried apparatus for a navigational system intended to determine the location of Soviet sea vessels and fishing ships. It also contained equipment for the international Space System for Search and Rescue of Vessels in Distress (COSPAS-SARSAT).

(Mr. Gazenko, USSR)

In terms of projects already carried out, under way or being planned, each space year clearly demonstrates the broad possibilities of international co-operation in the field of outer space. At present, as new countries are preparing to become involved in outer space, it would be wise not to duplicate research but to co-operate, share problems and tasks, and exchange the results obtained. This would have the benefit of greatly facilitating our methods and forms of work. Examples of that kind of progress already exist.

This February the first commercial payload, belonging to the United States, returned from the Soviet Mir station. The 56-day experimental flight was intended to determine whether weightlessness helps in the formation of protein crystals. In the opinion of the American firm Payload Systems, which financed the experiment, that flight's results were rather satisfactory.

At the end of last year, the joint Soviet-American enterprise Space Commerce Corporation and the private company Energetic Satellite Corporation concluded a contract on the launching of United States satellites from the Baikonur Space Centre, using Soviet rockets. It is our hope that the contracts for some of this work will in fact be carried out and that that work will be successful.

As regards the United States Space Shuttle, whose launch is to take place in August and September of this year, for the first time it is planned to carry out some biological experiments prepared by Soviet specialists.

The examples I have given, as well as many other forms of Soviet-United States co-operation in outer space, demonstrate that since the handshake in outer space - that is the Soyuz-Apollo project, whose fifteenth anniversary will be celebrated this July - outstanding results are to be gained from the co-operation of our countries in outer space.

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A new form of co-operation in the area of manned space flights was the agreement signed on 22 December 1989 in Moscow between Glavcosmos, of the USSR, and the National Centre for Space Research, of France. They provided for the carrying out of long-term programmes of joint research in manned flights. In particular, the programme calls for the holding of five Soviet-French expeditions over a 10-year period, which opens up broad prospects for space co-operation between the two countries.

There is great potential for developing co-operation to be found also in joint experiments on the Photon Soviet space rockets. These are especially intended to do research into space-materials science. Aboard those craft we have carried space equipment of the French National Space Agency and equipment built by the West German firm Kaiser Trade.

The Soviet space programme is intended to unite the efforts of the greatest possible number of States for the peaceful exploration and conquest of outer space. This is in keeping with the broad development of mutually profitable international co-operation, and is intended to lead to the establishment of a firm and stable peace on Earth and in outer space.

In conclusion let me express the certainty that under your guidance, Mr. Chairman, the Committee's work at this session will be successful and fruitful.

Mr. TANG Chengyuan (China) (interpretation from Chinese): Mr. Chairman, first of all I wish to congratulate you on your presiding over the work of the Committee once again. We are confident that under your guidance the current session will achieve satisfactory results.

Last year witnessed great achievements in the space activities of various States and in international space co-operation. The Committee on Outer Space and other relevant agencies have done a great deal of work in this regard and made valuable contributions. The United Nations has provided many technical advisory

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services to the developing countries through space-applications programmes. Training programmes, seminars and workshops have been conducted within the United Nations system, thus rendering beneficial services to the co-ordination of space activities, and progress has been registered. Some regional space co-operative instutitions have been strengthened.

In the past year new headway has been made in space activities by many Member States. The United States launched the Galileo and Magellan probles and placed the Hubble Space Telescope in orbit - it is the first of its kind in the history of mankind - with a view to observing the planets of the solar system and the cosmos. France successfully launched Sput-II, the second Earth-observing satellite with high resolution. The Soviet Union, through the spacecraft Sayus, sent new astronauts to space-station Mir. The astronauts have carried out intensive activities outside the vehicle's cabin. During the same period, gigantic strides have been taken by other countries, and space co-operation between developing countries has also been further developed.

The date 24 April 1990 marked the twentieth anniversary of China's launching of the first manmade Earth satellite. In the past 20 years, China has successfully launched 26 satellites, including satellites for scientific experiment, recoverable remote-sensing satellites, communications satellites and meteorological satellites, and so on.

The past year has witnessed continuous and steady developments in China's space activities.

On 4 February 1990 China successfully launched its fifth operational communications satellite, which has since been orbiting the Earth normally.

On 7 April 1990 China launched the communications satellite Asia-I, of the Hong Kong Asian Satellite Company, which was made by the United States Hughes Company, into geostationary orbit at an altitude of 35,800 kilometres. It was the

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first time China had undertaken launching services for commercial satellites, and it did so successfully. We hope this marks the beginning of the rendering of more and better services to other countries and regions in the future, as a complement to the international launching service market, thus contributing to international space undertakings. On 18 May 1990 Beijing International Satellite Television-Earth Station, of China Central Television (CCTV), the first of its kind in China connected with the international Outer Space Satellite Communications Organization, was put into operation in Beijing, which made it possible for China Central Television directly to exchange television programmes with 23 member States of the International Broadcasting Television Organization.

(Mr. Tang Chengyuan, China)

The quality of the transmitted pictures has reached an advanced international level. This is another success for Chinese satellite applications. In June this year China will also conduct the first experimental launch of the LM 2-E launch rocket, which involves the use of four liquid propellants.

China attaches importance to the development of various kinds of operational satellites. Today, the whole country is covered by a satellite communications network made up of operational communications satellites launched by China. Nearly 10,000 satellite ground receiving stations have been set up. Small-scale data ground stations are used to improve communications and education in remote areas and to enhance communications capabilities to meet contingency needs wherever disasters occur. There have been notable successes in satellite remote sensing applications, in such areas as a comprehensive survey of shelter-forest resources and ecological effectiveness, a general survey of soil erosion in loess plateaux and a survey of geological mineral resources. Following its establishment, the meteorological satellite operational system has done a good job of obtaining clear pictures of clouds by handling the data received by the first Chinese meteorological satellite launched in 1988. The results thus obtained by the satellite were transmitted throughout the country.

Moreover, China is intensifying its work to develop a new generation of communications broadcasting satellites with a capacity of 24 transponders, stationary meteorological satellites and Earth resources satellites. In response to General Assembly resolution 42/169, active research has been conducted on the development of a disaster monitoring satellite system, thus contributing to the international activities for the International Decade for Natural Disaster Reduction.

(Mr. Tang Chengyuan, China)

We are pleased to note that, under the guidance of the Committee on the Peaceful Uses of Outer Space, satisfactory results have been gained in implementing the programme proposed by the United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE 82). In that connection, the Chinese Government is also continuing its unremitting efforts towards implementation of outer space applications programmes. Last May, at the behest of the relevant United Nations agency, a workshop on applications for meteorological satellites was held in Beijing. In August this year an international seminar on climate change will be held in China, and next year China will host another international seminar on the application of space technology to combating disasters.

The Chinese Government fully supports the United Nations decision on the declaration of 1992 as International Space Year. China's Preparatory Committee for International Space Year has been set up, and the Chinese working paper relating to International Space Year has been submitted to the Committee at its current session, which indicates that the Chinese Government is willing to strengthen its co-operation with the United Nations and with all States in this regard and to make its own contributions.

I wish now to make some observations with regard to some items on the agenda of the current session.

At present, while the international situation is moving towards relaxation and while more favourable conditions have been created for international space co-operation, the arms race in outer space remains a worrisome problem. It is the consistent view of the Chinese Government that outer space should be used exclusively for peaceful purposes and that any kind of arms race should be halted. The main task of this Committee, of course, is to devote itself to the solution of scientific, technological and legal questions relating to the peaceful uses of outer space, to enhance international co-operation in outer space and to advance

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the peaceful uses of outer space. In order to fulfil its task, the Committee should when necessary improve the ways and means of carrying out its work. We have taken note of the different proposals put forward by various delegations. We hope that on the basis of full consultations the divergent views will gradually converge.

As for the work of the Scientific and Technical Sub-Committee and the Legal Sub-Committee, my delegation will give its detailed comments at a later stage. Here I should like to express our satisfaction at the progress made at the previous sessions of both Sub-Committees. It is especially encouraging to see that on the question of nuclear power sources consensus has been reached on principle 3, a crucial article in the draft principles, thus laying the foundation for agreement on other principles. This is an encouraging result.

On the whole, the Committee on the Peaceful Uses of Outer Space has achieved a great deal. However, many problems still remain. We hope and believe that the Committee will, with concerted efforts by all member States, solve the problems facing it and make even greater achievements. To that end, China is ready to co-operate with other members and to make its own contributions.

Mr. HOHENFELLNER (Austria): First of all, Mr. Chairman, let me welcome you to New York to preside again over the annual session of the Committee on the Peaceful Uses of Outer Space. If a committee ever had a truly experienced Chairman, it is surely this one. I can only wish you - and all of us - many happy returns.

I should also like to congratulate our new Vice-Chairman, Ambassador Munteanu, Permanent Representative of Romania, on his election to his post. He too continues a tradition. It also gives me great pleasure to see our Rapporteur, Mr. Flavio Perri of Brazil, on the podium again. That not only saves me from having to compose a valedictory statement but also assures us of yet another element of continuity and competence in our work.

(Mr. Hohenfellner, Austria)

The results of that work over the past year would not have been possible without the efforts made and the dedication shown by all representatives, members of the Secretariat and representatives of governmental and non-governmental organizations. Special thanks are due to the various Chairmen: Professor John Carver of Australia who, while celebrating his twentieth anniversary as Chairman of the Scientific and Technical Sub-Committee, also led its Working Group on nuclear power sources to what seems to have been a successful conclusion. Mr. Raimundo Gonzalez was not only again ably chairing the Scientific and Technical Sub-Committee's Working Group on the evaluation of the implementation of the recommendations of the United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE 82), but was also elected Chairman of the new working group in the Legal Sub-Committee. The Legal Sub-Committee itself also got a new Chairman in the person of Mr. Vaclav Mikulka of Czechoslovakia, who acquitted himself very well indeed, ably assisted by Mr. Estanislao Zawels of Argentina and Mr. Hans Winkler of Austria as Chairmen of the working groups on definition and delimitation of the geostationary orbit and on nuclear power sources respectively. Finally, the Working Group of the Special Political Committee at the forty-fourth session of the General Assembly was chaired by my compatriot Mr. Helmut Freudenschuss.

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It was that Working Group that produced General Assembly resolution 44/46, the basis and mandate for our work this year. With that resolution, we managed to resolve a number of contentious issues, in particular the question of when to establish and convene the Working Group under the new agenda item of the Legal Sub-Committee.

Yesterday, Mr. Chairman, you succinctly summarized the work accomplished in our two Sub-Committees. I shall therefore limit myself to highlighting a few points that are of particular interest to my delegation.

In chronological order, there are first the recommendations of the UNISPACE 82 Working Group of the Scientific and Technical Sub-Committee and the recommendations concerning International Space Year 1992 to the work of the United Nations and the Space Applications Programme. Yet again, there was no shortage of ideas, but there continues to be a shortage of means. The number of States making voluntary contributions, in cash or in kind, remains rather small. Austria, for one, has extended its fellowship programme at the Technical University of Graz for the study year 1990/1991, and intends to make another voluntary cash contribution later this year.

The Scientific and Technical Sub-Committee, in what seems to be the most significant achievement of its last session, managed to agree on a number of recommendations for the safe use of nuclear power sources. Those agreements were the basis for the equally successful work accomplished in the Legal Sub-Committee, to which I shall come back momentarily.

During the session of the Scientific and Technical Sub-Committee, we also witnessed once more a growing interest of delegations in matters relating to the space and Earth environments. That growing interest found its tangible expression in the recommendation by the Scientific and Technical Sub-Committee, based on a

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proposal made by my delegation after informal consultations, to change the title on an already existing agenda item to:

"Progress in national and international space activities related to the Earth environment, in particular progress in the geosphere-biosphere (global change) programme".

Overall, it seems safe to say that the Scientific and Technical Sub-Committee continued on the course charted back in 1985 to enhance the scientific and technological content of its work. At the same time, however, we must not forget that its primary task is to discuss policies for international co-operation in those fields.

I turn now to the main results of this year's meeting of the Legal Sub-Committee. The agreement reached on principle 3 of the draft set of principles on nuclear power sources relating to guidelines and criteria for safe use stands out. The agreement reached on this crucial aspect should pave the way to an early and successful completion of our work in this field. The informal meeting of interested delegations, to be held later this week, should also be useful in that context.

The discussion of the new agenda item of the Legal Sub-Committee concerning the legal aspects related to the application of the principle that the exploration and utilization of outer space should be carried out for the benefit and in the interests of all States, taking into particular account the needs of the developing countries, got off to a good start with the quick agreement on the Chairman of the Working Group established under the item. In this context, I can only repeat what my delegation said in Geneva - the fact that it took us two years to agree on the new item and almost another two years to agree on a working group, but less than two months to agree on our good friend Mr. Raimundo Gonzalez as its Chairman, clearly shows the high personal and professional esteem in which he is held here.

(Mr. Hohenfellner, Austria)

We look to him for guidance in our work under the new agenda item. The debate held in Geneva was a useful beginning. In continuing our work, we will have to find the right balance between going too fast and too slow and between attempting too much and too little. The Austrian delegation, as always, stands ready to contribute its share.

The conclusion of our work on nuclear power sources, which we hope will be soon, will doubtlessly lead to renewed debate about the future work of the Legal Sub-Committee. That is unavoidable. What should and could be avoided, however, is getting bogged down again in the quagmire of procedural and organizational disputes from which it might take us years to extricate ourselves. Instead, we should rely on the spirit of goodwill and mutual trust and confidence that has developed here recently, and find a flexible approach to that question.

You have already mentioned, Mr. Chairman, the much-improved international atmosphere that has substantially facilitated our work. That was particularly relevant for our consideration of ways and means of maintaining outer space for peaceful purposes. The Committee has thus been able to contribute its share to promoting international co-operation in the peaceful uses of outer space.

In conclusion, I would like to refer to the past tradition of outer space meetings being held in Austria. I recall the 1984 session of our Committee as well as UNISPACE 82, as the two most recent examples. I am very pleased to extend to the Committee the invitation of the Federal Government of Austria, the Mayor of Graz and the Governor of Styria to hold the thirty-fourth session of the Committee on the Peaceful Uses of Outer Space in 1991 in the city of Graz. That historic city, capital of Styria, is situated beautifully and conveniently at a relatively short distance from Vienna, and disposes of an excellent conference centre with all necessary facilities. Austrian space research activities are, in fact, centred in

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Graz. The Institute of Outer Space Research of the Austrian Academy of Sciences, as well as other research institutions and universities, are located there.

The invitation includes coverage of the additional costs entailed by the United Nations. In addition to our meetings, a rich programme of hospitality is being planned for representatives by the Austrian hosts. In the light of the positive reactions we have received in informal consultations, I am confident that the Committee will accept the invitation and thus renew the tradition of occasionally holding United Nations meetings on outer space in Austria.

The CHAIRMAN: I now call on the representative of the International Telecommunications Satellite Organization (INTELSAT).

Mr. TRUJILLO (INTELSAT): On behalf of the International Telecommunications Satellite Organization (INTELSAT), I would like to express our pleasure at being a part of the Committee's important work taking place, Sir, under your able leadership. We appreciate the opportunity to exchange ideas and other information on the peaceful uses of outer space with our colleagues represented here. Today, I would like to review the activities and work of INTELSAT since the last meeting of the full Committee in June 1989.

INTELSAT and its members have been observing the Organization's twenty-fifth anniversary throughout 1989-1990, and during that period INTELSAT services have continued to grow. Almost 180 countries, territories and dependencies now access the INTELSAT system. We have more than 2,200 separate communication pathways for international telephone, television, facsimile, and data communications. As of 1 April 1990, the INTELSAT system carried 119,639 full-time channels and over 100 full-time leases for television, domestic and specialized business applications, submarine fiber-optic and analog-cable restoration, capacity for the International Maritime Satellite Organization (INMARSAT), and capacity for United Nations

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peace-keeping operations. INTELSAT's membership also continues to grow. On 8 May 1990, Romania became the 119th member of the Organization.

In addition to its international communications role, INTELSAT continued to serve as a steady source of reliable, high quality, cost-effective domestic communications for developed and developing countries alike throughout the world. Almost 40 nations currently use the INTELSAT system for domestic telephony and television.

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INTELSAT recognizes the importance of meeting such requirements, and has taken several initiatives to enhance members' ability to utilize the INTELSAT system for domestic communications. Those initiatives include significant reductions in charges for long-term commitments for domestic and regional use and the introduction of transponders for unrestricted use (TUUs). TUUs allow the use of INTELSAT capacity for a mix of domestic and international traffic, with the goal of enhancing telecommunications interconnectivity between neighbouring countries with geographic, cultural and economic ties.

The INTELSAT Assistance and Development Program (IADP) provides technical and operational assistance to INTELSAT members and users in all aspects of their use of the INTELSAT system. Recent projects have focused on the implementation of digital technology as part of INTELSAT's thrust to convert the system to digital operation, which offers greater efficiency and conservation of the space segment. Since the inception of the programme in 1978, 89 countries have benefited from IADP assistance.

During the 1989-1990 time frame, IADP seminars were held on digital technology in Goa, India; Bridgetown, Barbados; and Beijing, People's Republic of China. The first two seminars, attended by delegates from Signatories and users in the area, provided a detailed review of technical and operational aspects of digital technology. The seminar in Beijing covered digital technology and inclined orbit operations.

In December 1989, in a move to make satellite communications more accessible to all parts of the globe, INTELSAT initiated a new Signatory training programme under IADP auspices. As part of this new training programme, materials will be developed on topics such as satellite communications theory, earth station planning, operation and maintenance, and INTELSAT financial practices and

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procedures. Those training materials will be used at Signatories' local training facilities as well as regional training facilities operated by Signatories. Two training programmes have been targeted for implementation in 1990: training of new earth station technicians and training of on-station technicians in digital technology.

INTELSAT offers front-row seats on the stage of world history to billions of people around the globe. Over the past year history-making happenings of global proportion and impact have occurred on almost every continent. North America, South America, Europe, Africa, Asia - all have been the focus of multiple major media events, live global coverage of which has been possible via the INTELSAT system.

Major world sporting events will take centre stage later this year: World Cup football, Wimbledon tennis, the Asian Games and the Goodwill Games. Such events will continue to enhance INTELSAT's role in broadcasting sports events of international scope and interest.

Broadcasting has been one of INTELSAT's fastest growing service areas. INTELSAT offers two basic types of service to meet broadcasting requirements: occasional use, with a minimum time of 10 minutes, and full-time lease. Since live global television has become a standard feature of broadcasting, demand has increased for continuous availability of broadcasting channels.

To meet broadcasters' demand for capacity to cover special events of several weeks' duration, INTELSAT introduced a new one-month lease service in December 1989. This new service expands the menu of options available to broadcasters to meet world television requirements. It represents yet another milestone in attaining INTELSAT's ongoing objective of providing television capacity where and when it is needed.

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Growth in the amount of satellite news-gathering traffic and special on-site event coverage has helped propel the increase in global broadcasting. At year-end 1989, 15 Signatories had 112 transportable earth stations for access to the INTELSAT system for broadcasting and other requirements.

INTELSAT continues to be an active participant in various forums within the framework of the International Telecommunication Union (ITU) and the International Standards Organization.

INTELSAT pursued a number of activities in 1989-1990 with the ITU. Advance publication information was submitted to the International Frequency Registration Board (IFRB) for the INTELSAT VII network. Advance publication information was also submitted for the INTELSAT K networks. INTELSAT also initiated the notification process for the INTELSAT V-A and INTELSAT VI networks.

INTELSAT has been involved in the work of both the International Radio Consultative Committee (CCIR) and the International Telephone and Telegraph Consultative Committee (CCITT). Areas of interest to INTELSAT have included television broadcasting matters, such as satellite news-gathering and standards development for high definition television (HDTV) and integrated services digital network (ISDN).

And, of course, INTELSAT's relationship with the United Nations has always been valued highly. In fact, the United Nations and INTELSAT have shared common objectives since virtually the beginning of the space era. The commitment to providing communications services to the nations of the world on a non-discriminatory basis remains the cornerstone of INTELSAT policy, and we now provide communications services for the United Nations peace-keeping operations, as I mentioned earlier. In addition, we look forward to active participation in the activities of International Space Year in 1992.

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Mr. Chairman, please accept our sincere thanks for the opportunity to review INTELSAT's activities since last June's session of the Committee. It has been a pleasure and honour to participate in the Committee's session this year.

The CHAIRMAN: I thank the representative of INTELSAT for his organization's continued support of the Committee.

I now call on the representative of the International Astronautical Federation (IAF).

Ms. GERARD (International Astronautical Federation (IAF): It is an honour to address the Committee and to represent, in so doing, the President of the IAF, Mr. George Van Reeth. On his behalf, I should like to summarize the Federation's activities since last year and to inform the Committee of our plans for coming years as they relate to the Committee's programmes and activities.

The IAF continues to grow, reflecting the acceleration of international interest in space science, technology, development and applications. The IAF now comprises 114 member organizations from 39 nations. These member organizations are professional societies, Government agencies, research institutes and industrial firms.

The IAF held its 40th Congress last October in Torremolinos, Spain. It attracted more than a thousand space scientists, engineers and lawyers from all over the world. Some 70 sessions and 700 papers covered topics of space exploration; space transportation and space stations; space communications; space safety and rescue; earth observation from space; search for extraterrestrial intelligence; space education; space technology disciplines, including astrodynamics, propulsion, power, materials and structures; automation and robotics; and space science disciplines, including life sciences, telescience and microgravity.

(Ms. Gerard, IAF)

The International Institute of Space Law of the IAF held its 32nd International Colloquium on the Law of Outer Space concurrently with the 40th Congress. The programme focused in particular on the legal implications of the application of the principle according to which the exploration and use of outer space shall be carried out for the benefit and in the interest of all States, taking into particular account the needs of the developing countries. It also focused on the legal aspects of the protection of the outer space environment and the legal status of the geostationary orbit in the light of the recent activities of the International Telecommunication Union (ITU).

For the third consecutive year a special session on the application of space technology to the problems of developing nations was held. The theme was space and flood management. The session was organized and chaired by Professor Rao, President of the Astronautical Society of India and a Vice-President of the IAF, who also chairs the IAF Committee for Liaison with International Organizations and Developing Nations.

(Ms. Gerard, IAF)

At this time, we would like to acknowledge the very effective support and help given IAF by the Chief of the Outer Space Affairs Division, Dr. Jasentuliyana, and the expert on space application, Dr. Abiodun, in the planning of these events.

IAF was also pleased to submit to the Committee a report entitled "Highlights in Space Technology and Applications of 1989", which is available as document A/AC.105/453, dated 10 January 1990. Also, in response, and as noted before, to the request of the Committee, IAF, together with the Committee on Space Research (COSPAR), organized a symposium on "Space Technology for Disaster Prediction, Communication and Rescue", during the recent meetings of the Scientific and Technical Sub-Committee on 27 and 28 February last.

The next Congress of the IAF will be held this coming October in Dresden, in the German Democratic Republic. The forty-first IAF Congress, with the theme of "Space for Peace and Progress", will doubtless provide new impetus to encourage greater international understanding and co-operation in the exploration and peaceful use of space for the benefit of mankind. At the same time, the International Institute of Space Law will hold its thirty-third Colloquium and will take up the topics of space activities, legal aspects of the global environment, and the legal implications of space commercialization. A brochure giving additional details on the Dresden Congress is available in this room.

We cordially invite all members of the Committee on the Peaceful Uses of Outer Space to attend our Dresden Congress and to plan their participation in the forty-second Congress in Montreal, Canada, in 1991 and the World Space Congress, which will combine the Congresses of COSPAR and IAF in 1992 during the International Space Year, in Washington, D.C.

The CHAIRMAN: I should like to convey the sense of gratitude of the Committee for the continued support of the IAF for our work.

ATTENDANCE BY NON-MEMBERS OF THE COMMITTEE

The CHAIRMAN: I should like to inform members that a note verbale has been received from the Permanent Representative of the Libyan Arab Jamahiriya requesting permission to attend the current session of the Committee on the Peaceful Uses of Outer Space as an observer. I should like to suggest that we invite the Libyan delegation to attend the current session of the Committee, with the usual understanding expressed in these circumstances. If there is no objection, we shall proceed accordingly.

It was so decided.

The CHAIRMAN: There being no further speakers for this morning's meeting, I shall adjourn the meeting until 3.00 p.m. this afternoon. I once again invite members to be punctual so that we can start the meeting on time.

The meeting rose at 12.15 p.m.